

PATENT COOPERATION TREATY

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

BROOKES BATCHELLOR LLP
102-108 Clerkenwell Road
London EC1M 5SA
GRANDE BRETAGNE

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PCT

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(PCT Rule 71.1)

Date of mailing

(day/month/year)

04.01.2006

Applicant's or agent's file reference

JHB/03364WO/JLH

IMPORTANT NOTIFICATION

International application No.

PCT/GB2004/004313

International filing date (day/month/year)

11.10.2004

Priority date (day/month/year)

09.10.2003

Applicant

UNIVERSITY OF SOUTHAMPTON et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary report on patentability and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary report on patentability. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

The applicant's attention is drawn to Article 33(5), which provides that the criteria of novelty, inventive step and industrial applicability described in Article 33(2) to (4) merely serve the purposes of international preliminary examination and that "any Contracting State may apply additional or different criteria for the purposes of deciding whether, in that State, the claimed inventions is patentable or not" (see also Article 27(5)). Such additional criteria may relate, for example, to exemptions from patentability, requirements for enabling disclosure, clarity and support for the claims.

Name and mailing address of the international
preliminary examining authority:



European Patent Office - P.B. 5818 Patentlaan 2
NL-2280 HV Rijswijk - Pays Bas
Tel. +31 70 340 - 2040 Tx: 31 651 epo nl
Fax: +31 70 340 - 3016

Authorized Officer

Adam, G

Tel. +31 70 340-4133



PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference JHB/03364WO/JLH	FOR FURTHER ACTION		See Form PCT/IPEA416																								
International application No. PCT/GB2004/004313	International filing date (day/month/year) 11.10.2004	Priority date (day/month/year) 09.10.2003																									
International Patent Classification (IPC) or national classification and IPC G01N25/04, G01N25/02, G01N25/72																											
Applicant UNIVERSITY OF SOUTHAMPTON et al.																											
<ol style="list-style-type: none"> 1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36. 2. This REPORT consists of a total of 5 sheets, including this cover sheet. 3. This report is also accompanied by ANNEXES, comprising: <ol style="list-style-type: none"> a. <input checked="" type="checkbox"/> sent to the applicant and to the International Bureau) a total of 2 sheets, as follows: <ul style="list-style-type: none"> <input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions). <input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box. b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions). 																											
<ol style="list-style-type: none"> 4. This report contains indications relating to the following items: <table style="width: 100%; border: none;"> <tr> <td style="width: 10%;"><input checked="" type="checkbox"/></td> <td style="width: 15%;">Box No. I</td> <td>Basis of the opinion</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. II</td> <td>Priority</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. III</td> <td>Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. IV</td> <td>Lack of unity of invention</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>Box No. V</td> <td>Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. VI</td> <td>Certain documents cited</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. VII</td> <td>Certain defects in the international application</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. VIII</td> <td>Certain observations on the international application</td> </tr> </table> 				<input checked="" type="checkbox"/>	Box No. I	Basis of the opinion	<input type="checkbox"/>	Box No. II	Priority	<input type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability	<input type="checkbox"/>	Box No. IV	Lack of unity of invention	<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement	<input type="checkbox"/>	Box No. VI	Certain documents cited	<input type="checkbox"/>	Box No. VII	Certain defects in the international application	<input type="checkbox"/>	Box No. VIII	Certain observations on the international application
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Date of submission of the demand 18.07.2005		Date of completion of this report 04.01.2006																									
Name and mailing address of the international preliminary examining authority: <div style="display: flex; align-items: center;"> <div> European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016 </div> </div>		Authorized Officer Duchatellier, M Telephone No. +31 70 340-2272																									



**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

10/575061
International application No.
PCT/GB2004/004313

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language, which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

Description, Pages

1-11 as originally filed

Claims, Numbers

1-6 received on 21.12.2005 with letter of 19.12.2005

Drawings, Sheets

1/4-4/4 as originally filed

- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/figs
- ☐ the sequence listing *(specify)*: _____
- ☐ any table(s) related to sequence listing *(specify)*: _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/figs
- ☐ the sequence listing *(specify)*: _____
- ☐ any table(s) related to sequence listing *(specify)*: _____

* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/GB2004/004313

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-6
	No: Claims	
Inventive step (IS)	Yes: Claims	1-6
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-6
	No: Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1). Reference is made to the following documents:

D1: US-A-2003118078

D2: WO-A-0102089

D3*: J. of Appl. Polymer science, Part B: Polymer Physics, vol. 34, pages 2783-2804, Zhuomin Ding et al.: "an experimental method for studying non isothermal crystallization of polymers at very high cooling rates".

D4: GB-A-2202941

* This document was cited in D1 (paragraph 317)

2). The invention relates to a method of measuring temperature value associated with melting, softening or decomposition by heating an array of samples on a support tray and determining optically a change of phase.

Such a method is known from D1 (cf. paragraphs 316-323 and figure 28).

The problem to be solved is to screen easily multiple samples in a single operation.

This problem is solved by illuminating the support tray and the whole array of samples, imaging the array of sample by a digital device and using image processing software to detect changes in the image of the array.

No available document recites this solution and this solution cannot be considered as obvious by the skilled man. consequently, the subject-matter of claim 1 fulfills the requirements of Article 33(3) PCT.

3). Dependent method-claims 2-4.

Claims 2-4 are dependent on claim 1 and as such also meet the requirements of the PCT with respect to novelty and inventive step.

4). Independent apparatus-claim 5.

For similar reasons as put forward concerning claim 1, the subject-matter of claim 5 meets also the requirements of the PCT with respect to novelty and inventive step.

5). Dependent apparatus-claim 6.

Claim 6 is dependent on claim 5 and as such also meets the requirements of the

PCT with respect to novelty and inventive step.

6). Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the documents D1 and D4 is not mentioned in the description, nor are these documents identified therein.

7). The independent claims are not in the two-part form.

8). The features of the claims are not provided with reference signs placed in parentheses (Rule 6.2(b) PCT).

9). The description has not been amended in accordance with new claim 1.

10/575061

12 AP20 Rec'd PGT/PTO 07 APR 2006

CLAIMS

1. A method of measuring temperature value associated with melting, softening or decomposition, comprising:
forming an array of samples on a support tray;
placing the support tray onto a heating device provided with temperature sensing means;
illuminating the support tray and the whole array of samples;
imaging the array of samples by a digital device;
varying the temperature of the heating device over a temperature range from below the anticipated melting, softening or decomposition point of the samples to above the anticipated melting, softening or decomposition point of the samples;
feeding an image of the whole array to a digital computer during the temperature variation sequence;
recording temperature values for the temperature of the heating device associated with each feed of image data;
reviewing the image data using image processing software loaded in the computer to detect changes in the image of the array, at each or selected sample locations;
logging the temperature of the heating device recorded in respect of an image change associated with a change in state of a sample.
2. A method according to claim 1, in which the image processing software detects changes in image intensity at sample locations.
3. A method according to claim 2 in which the heating device is provided with temperature sensing means that gives a computer readable output of the temperature of the block; the imaging device is a digital camera or webcam that feeds images to a computer loaded with the image processing software; the computer records temperature data associated with each image; and the image processing software is used to detect changes in the image intensity at each or selected sample locations; and the temperature associated with a significant change in intensity is noted.

4. A method according to claim 3 in which sequential images transmitted to the computer are stored in the computer memory with a temperature transmitted from the heating block at the time of creation of the image, and after completion of the heating cycle the stored images are processed to generate data relating to the intensity of the image at selected sample locations, and the intensity data and temperature data are used to generate a plot of intensity against temperature from which melting point values for the selected samples can be assessed.

5. Apparatus for measuring melting point values comprising:
a heating device with temperature sensing means that gives a computer readable output of the temperature of the block;
a sample support tray that can be placed on the heating device to heat samples placed on the support tray;
a digital camera that can be positioned to image all samples on the support tray;
means for illuminating the samples for observation by the camera;
control means for varying the temperature of the heating device over a temperature range from below the anticipated melting, softening or decomposition point of the samples to above the anticipated melting, softening or decomposition points of the samples;
a computer to receive image data from the camera and temperature data from the sensing means on the heating block;
recording means to log images of the support tray and samples and record the temperature of the heating block;
an image processing program loaded in the computer and operable to review the images received from the camera, and monitor the intensity of the image at each or selected sample locations;
whereby significant changes in the images can be correlated with the temperature of the heating block.

6. Apparatus according to claim 5 in which the camera is a webcam transmitting image data to the computer during the heating sequence.